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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/634,243	08/08/2000	Yukito Kawahara	S004-4049	2427

7590 05/14/2004
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EXAMINER

KIBLER, VIRGINIA M

ART UNIT	PAPER NUMBER
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2623

DATE MAILED: 05/14/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/634,243

Applicant(s)

KAWAHARA ET AL.

Examiner

Virginia M Kibler

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-26 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/22/04 has been entered.

Response to Amendment

2. The amendment received on 4/22/04 has been entered. Claims 1-12 and 14-26 remain pending.

Claim Objections

3. Claim 18 is objected to because of the following informalities: claim 18 is the same as claim 15. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 2, 4-6, 9-12, 14-20, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (6,191,410) in view of Fujieda et al. (5,446,290).

Regarding claim 1, Johnson discloses a fingerprint reading device including an active matrix liquid crystal cell 22 (Col. 4, lines 43-47) having a front surface facing a user and a rear surface opposing the front surface (Figure 3), an illumination source 21 for projecting a light from the rear surface to the front surface of the active matrix liquid crystal cell (Col. 4, lines 39-40), a flat light guiding plate 1 on the front surface of the active matrix liquid crystal cell for transmitting the light projected from the rear surface of the active matrix liquid crystal cell and deflecting toward a side end surface of the light guiding plate light that enters the light guiding plate from a front surface thereof and is directed toward the rear surface (Figure 3), light receiving means 3 on the side end surface of the light guiding plate for receiving the deflected light exiting from the side end surface of the light guiding plate (Figure 3), and a drive circuit for driving the active matrix liquid crystal cell to pinpoint-irradiate a fingerprint in contact with the light guiding plate by pinpointing with the light emitted from the illumination source and causing the light receiving means to pinpoint-receive the light reflected by the fingerprint and thereby obtain an image of the fingerprint (Col. 1, lines 46-49; Col. 2, lines 57-67 and Col. 3, lines 1-16). Johnson does not disclose a flat light guiding plate having parallel opposed main faces. However, Fujieda et al. ("Fujieda") teaches that it is known to use a flat light guiding plate 13 having parallel opposed main faces in a fingerprint reading device (Col. 4, lines 39-43). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the flat light guiding plate disclosed by Johnson to include one with

Art Unit: 2623

parallel opposed main faces as taught by Fujieda because the arrangement is advantageous in that the amount of light and color can be controlled (Col. 6, lines 1-24).

Regarding claim 2, Johnson discloses the active matrix liquid crystal cell comprising a liquid crystal cell of a liquid crystal display device (Col. 1, lines 46-49).

Regarding claim 5, Johnson discloses the light receiving means comprising a light receiving element 3 and a lens 23 for converging on the light receiving element the light exiting from the side end surface of the light guiding plate (Figure 3).

Regarding claim 6, Johnson discloses a method for providing an active matrix liquid crystal cell (Col. 4, lines 43-47), an illuminating means 21 for projecting light from a rear surface of the active matrix liquid crystal cell (Col. 4, lines 39-40), a light guiding plate 1 on a front surface of the active matrix liquid crystal cell opposite the rear surface for receiving the light coming from the rear surface and deflecting toward a side end surface of the light guiding plate light that enters the light guiding plate from a front surface thereof and is directed toward the rear surface (Figure 3), selectively pinpoint-irradiating a fingerprint touching a front surface of the light guiding plate through the active matrix liquid crystal cell with the light projected from the rear surface of the active matrix liquid crystal cell (Col. 4, lines 43-47), receiving the light 3 reflected by the fingerprint and exiting from the side end surface of the light guiding plate (Figure 3), and using the received light reflected by the fingerprint to obtain an image of the fingerprint (Col. 2, lines 57-67 and Col. 3, lines 1-16). Johnson does not disclose a flat light guiding plate having parallel opposed main faces. However, Fujieda et al. ("Fujieda") teaches that it is known to use a flat light guiding plate 13 having parallel opposed main faces in a fingerprint reading device (Col. 4, lines 39-43). Therefore, it would have been obvious to one of

Art Unit: 2623

ordinary skill in the art at the time of the invention to have modified the flat light guiding plate disclosed by Johnson to include one with parallel opposed main faces as taught by Fujieda because the arrangement is advantageous in that the amount of light and color can be controlled (Col. 6, lines 1-24).

Regarding claim 10, Johnson discloses the side end surface 8 of the light guiding plate 1 is disposed at a right angle with respect to the front and rear surfaces of the active matrix liquid crystal cell 22 (Figure 3).

Regarding claim 11, the arguments analogous to those presented above for claim 1 are applicable to claim 11. Johnson discloses a fingerprint reading device including a liquid crystal cell having a plurality of separately addressable pixels (Col. 4, lines 39-40), a front surface facing a user and a rear surface opposite the front surface (Figure 3), an illumination device 21 for projecting light from behind the rear surface through the front surface of the liquid crystal cell to illuminate a finger place over the front surface (Figure 3), a light receiving device 3 for receiving light reflected by the finger, and a drive circuit for sequentially driving the respective pixels of the liquid crystal cell (Col. 4, lines 39-47) to project light from the illumination device onto the finger so that an image of the finger can be obtained based on the reflected light (Col. 2, lines 57-67 and Col. 3, lines 1-16), and a light guiding plate disposed over the front surface of the liquid crystal cell for transmitting the light projected from the rear surface of the liquid crystal cell and deflecting toward a side end surface of the light guiding plate light that enters the light guiding plate from a front surface thereof and is directed toward the rear surface (Figure 3). Johnson does not disclose a flat light guiding plate having parallel opposed main faces. However, Fujieda et al. ("Fujieda") teaches that it is known to use a flat light guiding plate 13

Art Unit: 2623

having parallel opposed main faces in a fingerprint reading device (Col. 4, lines 39-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the flat light guiding plate disclosed by Johnson to include one with parallel opposed main faces as taught by Fujieda because the arrangement is advantageous in that the amount of light and color can be controlled (Col. 6, lines 1-24).

Regarding claim 12, Johnson discloses an active matrix liquid crystal cell (Col. 4, lines 43-47).

Regarding claim 14, Johnson discloses the light receiving device 3 disposed adjacent to the side end surface of the light guiding plate 1 for receiving the deflected light (Figure 3).

Regarding claims 15 and 18, the arguments analogous to those presented above for claim 5 are applicable to claims 15 and 18.

Regarding claim 16, Johnson discloses a drive circuit controlling the liquid crystal cell by sequentially activating respective pixels thereof so that the light emitted by the illumination device is irradiated onto the fingerprint pixel by pixel (Col. 4, lines 39-55) and light reflected by the fingerprint is received by the light receiving device 3 so that an image of the finger can be obtained (Col. 2, lines 66-67 and Col. 3, lines 1-16).

Regarding claim 19, the arguments analogous to those presented above for claim 10 are applicable to claim 19.

Regarding claim 20, the arguments analogous to those presented above for claim 2 are applicable to claim 20.

Regarding claims 4 and 17, Johnson discloses a light receiving sensor provided along the side end surface of the light guiding plate (Figure 3). Johnson does not appear to specify the

Art Unit: 2623

light receiving means including a line sensor. However, Johnson discloses using a grid of receptors as the light receiving sensors (Col. 2, lines 42-44). Therefore, in light of Johnson's disclosure it would have been obvious to one of ordinary skill in the art to have modified the light receiving sensor to include a line sensor because it is well known in the art and would be an obvious matter of design choice.

Regarding claims 9 and 26, Johnson does not appear to specify the resolution and the pitch of the active matrix liquid crystal cell. However, in light of Johnson's disclosure this would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the active matrix liquid crystal cell disclosed by Johnson to expressly state a specific resolution and pitch as a design parameter.

6. Claims 3, 7, 8, and 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson (6,191,410) and Fujieda et al. (5,446,290) as applied to claims 1 and 11 above, and further in view of Young (5,869,791).

Regarding claims 7 and 24, Johnson and Fujieda do not appear to explicitly state a matrix of transparent electrodes driven by thin film switching elements. However, Young teaches that it is known to use an active matrix liquid crystal cell (Col. 3, lines 49-53) with a matrix of transparent (Col. 3, lines 40-41) electrodes driven by thin film switching elements (Col. 3, lines 57-66). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the active matrix liquid crystal cell disclosed by Johnson and Fujieda to expressly state a matrix of transparent electrodes driven by thin film switching element, as taught by Young, because it is well known in the art and will allow it to be integrated with a LCD panel (Col. 3, lines 49-53).

Regarding claims 8 and 25, the arguments analogous to those presented above for claim 7 are applicable to claims 8 and 25. Young discloses the thin film switching elements comprising TFTs (Col. 3, lines 57-66).

Regarding claims 3 and 23, the arguments analogous to those presented above for claim 7 are applicable to claims 3 and 23. Young discloses the active matrix liquid crystal cell provided in superposition on part of a liquid crystal cell of a LCD device (Col. 3, lines 49-57).

Regarding claim 21, the arguments analogous to those presented above for claim 7 are applicable to claim 21. Young discloses an active matrix liquid crystal cell including a first transparent substrate 14, a second transparent substrate 45, a spacer joining the first and second transparent substrates so that a gap is formed there between, a layer of liquid crystal material 48 filled in the gap, and a plurality of pixel elements arranged in a matrix for altering the light transmission characteristics of the liquid crystal material (Col. 10, lines 52-67).

Regarding claim 22, the arguments analogous to those presented above for claim 7 are applicable to claim 22. Young discloses the pixel elements comprising a transparent electrode and an active switching element formed on one of the transparent substrates facing the liquid crystal material layer (Col. 10, lines 60-67).

Response to Arguments

7. Applicant's arguments filed 4/22/04 have been fully considered but they are not persuasive.

Summary of Applicant's Argument: Johnson discloses a wedge-shaped prism and is not a flat light guiding plate having parallel opposing surfaces. Fujieda does not disclose the optical

Art Unit: 2623

element 13 deflecting toward a side end surface of the light guiding plate light entering from the front surface of the light guiding plate and directed toward the rear surface of the light guiding plate.

Examiner's Response: Johnson discloses a flat light guiding plate 1 on the front surface of the active matrix liquid crystal cell for transmitting the light projected from the rear surface of the active matrix liquid crystal cell and deflecting light entering from the front surface toward a side end surface of the light guiding plate (Figure 3). Johnson further discloses deflecting toward a side end surface of the light guiding plate light that enters the light guiding plate from a front surface thereof and is directed toward the rear surface (Figure 3). Johnson does not disclose a flat light guiding plate having parallel opposed main faces and is not relied on for this limitation. Fujieda is not relied on for the limitations for transmitting light projected from the rear surface of the liquid crystal cell and deflecting toward a side end surface of the light guiding plate light that enters the light guiding plate from a front surface thereof and is directed toward the rear surface. Fujieda teaches that it is known to use a flat light guiding plate 13 having parallel opposed main faces in a fingerprint reading device (Col. 4, lines 39-43). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the flat light guiding plate disclosed by Johnson to include one with parallel opposed main faces as taught by Fujieda because the arrangement is advantageous in that the amount of light and color can be controlled (Col. 6, lines 1-24).


Art Unit: 2623

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia M Kibler whose telephone number is (703) 306-4072. The examiner can normally be reached on Mon-Thurs 8:00 - 5:30 and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703) 308-6604. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Virginia Kibler
05/12/04

MEHRDAD DASTOURI
PRIMARY EXAMINER

